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Implementation of problem-oriented learning sessions in para-clinical years of medical college

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Abstract

Background: In order to develop competent health care professionals and to help medical students to acquire clinical reasoning, critical thinking and problem-solving skills, it was decided to initiate problem-oriented learning (POL) sessions as a part of implementation of integrated learning in the second year of undergraduate education of medical students in a medical college.

Methods: A group of 150 students in the second year of their undergraduate education was divided into 10 sets of 15 members each. For each weekly POL session, one lead department was identified and from that department, one faculty member was assigned for each of the 10 groups for clarity and guidance. Four to five departments in all were involved in these POL sessions based on the topic and were instructed to frame their objectives and share these with the lead department at least one week prior to each session to develop appropriate problems for discussion.

Results: Initial results failed to meet the desired objectives. The entire exercise was restructured and attention was given to the areas where weaknesses were identified. Faculty members were provided with additional information about POL and the number of sessions was reduced to two per month. Faculty members were instructed to be discussion facilitators rather than to become involved in didactic teaching. Subsequently, a significant improvement was observed both in terms of outcomes and student participation.

Conclusion: It is relatively easy to start a new mode of teaching-learning; however, outcomes improve when efforts are planned systematically and implementation is revisited after challenges and gaps are identified.

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Introduction

Problem-oriented learning (POL) in medical education is a student-centric mode of teaching-learning in which students learn about a topic by solving a problem presented in the shared resource material.[1,2] The overall process of problem solving does not emphasize a specific solution, but rather enables the learner to devise their own unique solutions, and, in the process, acquire other desirable skills.[1,2] These include the acquisition of knowledge, critical thinking, critical appraisal, clinical reasoning, learning literature review, team work and improved communication skills.[2] Broadly, the entire process is comprised of three steps: problem analysis, self-directed learning, and reporting, all of which are interdependent and prepare the students for better learning.[3]

In order to develop competent health care professionals and to help medical students to acquire clinical reasoning, critical thinking and problem-solving skills, integrated teaching has been initiated at a medical college for the first and second years of undergraduation. As a part of the implementation of integrated learning, POL sessions were established in the second year of undergraduate education of medical students in a medical college. One hundred and fifty students were divided into 10 sets of 15 members each. The objective of the study was to measure the effectiveness of POL sessions in increasing medical

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students' acquisition of skills, and to use these results for continuous improvement of the program.

Materials and Methods

The plan

Owing to ensure better curricular delivery and to empower undergraduate students with clinical reasoning and critical thinking skills, it was decided to adopt POL as an additional mode of teaching-learning apart from the routine curriculum. POL is derived from the constructivist theory of learning and is extremely useful for students. It was decided to conduct weekly POL sessions with the topics and a timetable finalized through consultation and discussion. The topics for these POL sessions comprised the routine topics which were being taught to the students and required an integrated-cum-multi-specialty approach for better understanding, including malaria, dengue fever, human immunodeficiency virus (HIV) infection, anemia, trauma, etc. For each session, one lead department was identified (any department other than pre-clinical) and from that department, one faculty member was assigned for each of the 10 groups. In each POL session, four to five departments were involved based on the topic and all involved departments were instructed to frame their objectives and share these with the lead department at least one week prior to each session.

Ten facilitators were required to facilitate all 10 groups, and, depending upon the number of departments involved in each session, faculty members from each of the involved departments were selected as facilitators. On average, four faculty members from the concerned departments were involved as facilitators. Some selected faculty members were trained in POL while the majority of them, especially from the clinical departments, were not oriented to POL.

The lead department was responsible for framing the questions for discussion (keeping in mind the objectives of different involved departments) and these were shared with students at least five days in advance. One student leader and one scribe from each group was identified and asked to present answers to the given problem in rotation. On the day of the POL session, leader representatives from each of the groups presented their problems and solutions to all 150 students in the form of a PowerPoint presentation.

Results and Discussion

Initial results

A) Communication among departments

- There was a lack of coordination among the involved departments. More often than not, session objectives from the involved departments were not shared with the lead departments.
- In some POL sessions, questions from the lead departments were framed earlier, even before receiving objectives from other involved departments.
- For many involved departments, the planned objectives were not met.
- The sessions were quite frequent (held weekly) and departments found they had limited time to prepare and communicate preparations.

B) Process

- Rather than small-group POL, the learning was centered on large-group teaching and integration happened mostly in the form of involvement of various departments (which had limitations due to communication constraints).
- Little to no discussion was observed between different members of the groups.
- The importance of and need for POL in current clinical practice was not explained to faculty members.
- The paraclinical departments involved did not ensure that the framed questions or objectives were matched to the needs of students.

C) Faculty members

- Faculty members, especially from clinical departments, were not oriented to the steps to be followed in conducting POL sessions.

Facilitators did not facilitate discussions but assumed roles as teachers, conducting didactic lectures.

- There was minimal contribution from the faculty members to enhance student learning.
- Rather than faculty, postgraduate students were sent from some clinical departments to facilitate discussions.

D) Students

- Students were from the second year and had minimal knowledge of clinical subjects. Thus, the decision to make clinical departments as lead departments made the process complicated for the students as they often found the subjects difficult to comprehend since they had little or no previous exposure.
- Often only the assigned student leader and scribe worked towards the solution of a given problem; the role of other students in the discussion was minimal or nonexistent.[2-5]

Feedback and Improvements

Feedback from the involved departments as well as from students was sought after the completion of four POL sessions. After assessing the feedback, the following improvements were proposed and implemented:

- Faculty members were oriented to POL and how it should be done to ensure that student participation is more self-directed learning and less didactic teaching.
- The number of POL sessions was decreased from once per week to twice per month to allow departments time to prepare: quality of instruction is

more important than quantity.
- The lead departments were restricted to para-clinical departments, as they are in the best position to frame the questions to suit the needs of the students based on their current level of education and understanding.
- All involved departments were instructed to maintain the established timeline for sharing their objectives.
- The topics for POL were revisited and those topics which were most relevant to second-year medical students were selected after input from the clinical departments.
- Plenary presentation was removed from the program and the entire discussion took place within the small group setting.
- The student leader role was removed; instead, all members of the group were expected to participate in the discussion.
- The number of problems given to the student groups was reduced.
- Facilitators were instructed to facilitate the discussions and not to try to teach students.
- Faculty members were assigned to facilitate the groups; postgraduate students were not eligible.
- One member of the Medical Education Unit was assigned to each of the POL sessions to supervise their management and to give feedback about the process.

Subsequent Results

Following the implementation of the improvements, the POL sessions became venues for small group teaching, and student as well as faculty involvement increased quite a bit. By reducing the number of POL sessions from four to two each month, the lead departments had more time to plan activities. The decisions to make only para-clinical departments as lead departments' facilitated learning, since the needs of the students are well understood by them. The students benefited extensively as they participated in each of the discussions and the overall process became quite fruitful.

Conclusion

It is relatively easy to start a new mode of teaching-learning; however, outcomes improve when efforts are planned systematically and implementation is revisited after challenges and gaps are identified.

Ethical approval

Not required.

Competing interests

The authors declare that there is no conflict of interest.

Authors' Contributions

SRS contributed in the conception or design of the work, data collection, drafting of the work, approval of the final version of the manuscript, and agreed for all aspects of the work. PSS contributed in the literature review, revision of the manuscript for important intellectual content, approval of the final version of the manuscript, and agreed for all aspects of the work.

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